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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,797	04/27/2007	Maurizio Galimberti	07040.0258-00000	5909

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WASHINGTON, DC 20001-4413

EXAMINER
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FISCHER, JUSTIN R

ART UNIT	PAPER NUMBER
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1791

MAIL DATE	DELIVERY MODE
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06/11/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/576,797	<b>Applicant(s)</b> GALIMBERTI ET AL.	
	<b>Examiner</b> Justin R. Fischer	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 72-146 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 72-146 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 72-96, 99, 101-115, 124-133, 136-144, and 146 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson (EP 1193085) and further in view of Magnus (US 5,238,991).

Larson substantially teaches the claimed tire construction, including at least one tire component formed of the following composition: 100 phr of a diene based elastomeric polymer and 1-10 phr of an intercalated, layered clay (such as montmorillonite) (Paragraph 20). The reference further suggests that possible tire components include tire carcass plies, carcass belts, sidewall inserts, and apex components (Paragraph 3). The reference, however, is silent as to the inclusion of a methylene donor and a methylene acceptor. In any event, methylene donors and acceptors represent the conventional additives that included in a wide variety of tire components in order to improve mechanical properties and bonding with adjacent reinforcing elements, as shown for example by Magnus (Column 4, Lines 60+). It is emphasized that the composition of Larson is described as including "various commonly used additive materials" (Paragraph 47) and one of ordinary skill in the art at the time of the invention would have recognized such language as including methylene donors and

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acceptors. As to the additive loadings, Larson teaches that additive materials generally have a loading in accordance to the claimed invention (Paragraph 48). Lastly, applicant has not provided a conclusive showing of unexpected results to establish a criticality for a composition including layered materials (clays) and methylene additives (Magnus specifically teaches an increase in stiffness due to the inclusion of methylene additives, which appears to be applicant's purported benefits from Table 1).

Regarding claims 73, 74, 79, 80, 128, and 129, as noted above, the composition of Larson includes between 1 and 10 phr of layered material or clay.

As to claims 75, 81, and 130, the exfoliated platelets (individual layers) have a thickness of about 1 nm (Paragraph 24).

With respect to claims 76, 77, 82, 83, 131, and 132, as noted above, the claimed ranges are consistent with those commonly associated with tire additives, Such as methylene donors and acceptors.

Regarding claim 78, Larson suggests the exemplary formation of carcass plies, belt plies, sidewall inserts, and apex components.

As to claims 84, Larson suggests the manufacture of a sidewall insert and a bead apex (bead structure).

With respect to claims 85 and 86, Larson includes the following language: **in particular**, tire carcass plies, carcass belts, sidewall inserts, and apex components are addressed for use of such oriented intercalated clay and exfoliated portions thereof (Paragraph 3). A fair reading of this language suggests the general inclusion of such a rubber composition in all common tire components, including the tread cap and/or tread

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base, and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed tire component.

Regarding claims 87-92, as noted above, the rubber composition of Larson can be used to manufacture a wide variety of tire components, including sidewall inserts and apex components. It is well recognized that sidewall inserts (runflat inserts) and apex components (fillers) have high modulus values and high hardness values. More particularly, the claimed values are consistent with the properties conventionally associated with the aforementioned components. It is emphasized that Larson is generally directed to the manufacture of a wide variety of tire components and the disclosed properties are consistent with those associated with a wide variety of such tire components.

With respect to claims 93-96 and 133, Larson suggests the possible use of natural rubber, which is recognized as having a glass transition temperature below 20 degrees Celsius (Paragraph 38). Also, Larson teaches a composition having 100 phr of at least one diene based elastomer, such as natural rubber (Paragraph 20).

Regarding claim 99, it is extremely well known to modify diene based elastomers with a variety of functional groups, including those set forth by the claimed invention (improves interaction of elastomer with additional components). More particularly, ENR or epoxidized natural rubber represents one of the most common forms of a modified diene based elastomer and such a rubber is commonly used to form a wide variety of tire components, including those detailed by Larson.

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As to claims 101, 102, and 136, Larson suggests the use of montmorillonite clay (Paragraph 20).

Regarding claims 103 and 104, Larson suggests the use of quaternary ammonium salts (Paragraph 29).

With respect to claims 105-109 and 137-139, Magnus suggests the use of each of the claimed methylene additives. With specific respect to claim 109, the particular form in which the methylene donor and methylene acceptor are added to the composition do not further define the structure of the claimed tire article (limitations concerned with the method of forming the composition).

As to claims 110, 111, and 140, the composition of Larson includes between 20 and 99 phr of at least one filler, such as carbon black (Paragraph 20).

Regarding claims 112-115, 126, 141, and 144, the composition of Larson includes the claimed silane coupling agent (Paragraphs 22 and 23).

With respect to claims 124, 125, 142, and 143, the composition of Larson can include silica (Paragraph 20).

3. Claims 97, 98, 100, 116-123, 134, 135, and 145 are rejected under 35 U.S.C. 103(a) as being unpatentable over Larson and Magnus as applied in the previous paragraph and further in view of Brown (US 4,871,004).

As to claims 97, 98, 100, 134, and 135, it is well known to form tire rubber components from a mixture of rubber compounds. More particularly, EPDM rubbers represent one of the most common compounds used in tire components. Brown provides one example of tire components comprising diene based elastomers and/or

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EPDM rubbers (Column 4, Lines 25+) and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed combination. Also, with respect to claims 100 and 135, as noted in the previous paragraph, it is extremely well known to modify diene based elastomers with a variety of functional groups, including those set forth by the claimed invention (improves interaction of elastomer with additional components).

Regarding claims 116-123 and 145, while Larson fails to expressly disclose the inclusion of aramid fibers, reinforcing fibers are well recognized as being "commonly used additive materials" and such are taught by Larson as detailed above. Brown provides one example in which aramid fibers are included in a wide variety of tire components, including apex components and belt plies, in order, among other things, to provide a high degree of stability at low elongations (Column 8, Lines 59+). As such, one of ordinary skill in the art at the time of the invention would have found it obvious to include aramid fibers in the tire components of Larson.

Additionally, Larson suggests the use of short fibrillated poly(paraphenylene-terephthalamide) fibers at a loading between 0.2 and 20 phr (Column 7, Lines 38-44).

### ***Response to Arguments***

4. Applicant's arguments filed April 30, 2009 have been fully considered but they are not persuasive.

Applicant argues that Mangus does not provide any information that would lead one of ordinary skill in the art to conclude that an RF resin (i.e. a methylene

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donor/acceptor complex) is compatible with a rubber composition that comprises a layered material, such as the smectite clays that are central to the disclosure of Larson.

The examiner respectfully disagrees. As detailed in the rejection above, Larson specifically directs one to include a wide variety of commonly used additive materials (Paragraph 47) and it is well recognized that the claimed methylene donor and acceptors represent such "commonly used additive materials", as shown for example by Mangus. Given the general disclosure of Larson, there is a reasonable expectation of success in adding the claimed methylene donors and acceptors to the tire rubber composition of Larson. Furthermore, a fair reading of Mangus fails to suggest the exclusive use of methylene donors and acceptors in tire rubber compositions devoid of layered materials, such as smectite clays. Lastly, it is noted that Mangus suggests the inclusion of said additives in order to improve stiffness and adhesion with reinforcing elements (when present) and such benefits would be highly desirable in the cord reinforced and non cord reinforced tire components of Larson.

In regards to Table 1, it is emphasized that one of ordinary skill in the art at the time of the invention would have been amply motivated to include a methylene donor and acceptor in the tire composition of Larson. In such an instance, any realized benefits would be expected to necessarily be present- the fact that applicant has recognized another advantage (e.g. reduced hysteresis) which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). It is further noted that the amount of natural rubber and the



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amount of carbon black is varied between the inventive examples (4 and 5) and the comparative examples (1-3)- this variation makes it unclear if the realized benefits are a result of any one parameter or a combination of parameters.

Regarding Brown, applicant contends that the reference fails to provide any information that would indicate that one of ordinary skill in the art could reasonably predict that the claimed composition of a diene, layered material, and methylene donor/acceptor compound would produce a synergistic effect and attendant properties that far exceed the contributions of each individual additive. First, as detailed above, the amount of natural rubber and the amount of carbon black is varied between the inventive examples (4 and 5) and the comparative examples (1-3)- this variation makes it unclear if the realized benefits are a result of any one parameter or a combination of parameters. Second, Brown specifically teaches the inclusion of reinforcing fibers in cord reinforced and non cord reinforced tire layers in order to, among other things, provide a high degree of stability at low elongations. Thus, any realized benefits would necessarily be expected to be present in the rubber composition of Larson in view of Mangus and Brown.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Justin Fischer  
/Justin R Fischer/  
Primary Examiner, Art Unit 1791  
June 9, 2009